Chesterfield County
Office of Water Quality

What is the foam in my creek?

Fast Enviro-Facts No. 2—Foam

Seeing foam in a stream, river or lake can be quite alarming. The first thing one thinks of is pollution. However, not all foam is man-made.

Generally, foam is created when the surface tension of water is reduced and air is mixed in causing bubble formation. This process can certainly occur as a result of pollution from commercial or industrial detergents, but the majority of the time it is a natural phenomenon.

Natural foaming occurs when decaying matter releases a variety of organic compounds that act as surfactants, reducing the surface tension of the water. These compounds include fatty acids and plant oils that are chemically similar to the additives in soaps and detergents. Additionally, clay and fine soils that tend to float near the water's surface contribute to foam production.

Foam is produced as air is churned into water by turbulent flow or wave action and may accumulate on the banks or shore and in snags and eddies. Natural foam is usually off-white or tan and has a somewhat earthy aroma. Spring and autumn mornings are the most common times of the year that foam is produced and observed in streams and lakes. Research has suggested that natural foams are a benefit to fish providing them with a place to hide from predators.

Foam from pollution is another matter. Although it is created in the same manner, it is quite different in appearance and odor. Foams from detergents or industrial discharges are often bright white and have distinct chemical or perfume odors. Foam that smells like laundry soap probably is laundry soap. Additionally, man-made foams are often soapy feeling. Foams from laundry and cleaning products also break down faster in the water than natural foam and are less likely to be observed far from their source.

For more information about foam, please contact Weedon Cloe of the Chesterfield County Office of Water Quality at 706-2061.